

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 27 MAR 2006

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Applicant's or agent's file reference VTT 132 PCT	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/FI2004/000759	International filing date (day/month/year) 13.12.2004	Priority date (day/month/year) 11.12.2003	
International Patent Classification (IPC) or national classification and IPC INV. D21B1/02			
Applicant VALTION TEKILLINEN TUTKIMUSKESKUS et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand  11.10.2005		Date of completion of this report  24.03.2006	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer  Rupprecht, A  Telephone No. +49 89 2399-7076	



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International application No.  
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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements**\* of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-18 as published

**Claims, Numbers**

1-18 as published

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-18
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-18
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**Re Item VIII**

**Certain observations on the international application**

1. Although claims 1 and 17 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.
2. The term "effective amount" used in claim 1 is vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claim unclear, Article 6 PCT.

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: WO 97 40194 A1

D2: EP-A1-0 430 915

2. Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT, and therefore the criteria of Article 33(1) PCT are not met.

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (see in particular page 10, lines 9-20; pages 12-15, examples 3 and 4):

A process for preparing mechanical pulp comprising a pre-treatment of chips with an enzyme that is capable of disintegrating the structural parts of the wood, after which

the chips are made into mechanical pulp by refining. The enzymatic treatment is carried out by compressing the chips and bringing the compressed chips into contact with a liquid phase containing an enzyme preparation. Cellulase is mentioned as a suitable enzyme (page 10, line 9-10). The process according to D1 can be used to reduce the amount of power required to refine the wood to mechanical pulp while improving the strength (pages 12-15, examples 3 and 4).

The subject-matter of claim 1 therefore differs from this known process in that the enzyme preparation contains an effective amount of both cellobiohydrolase and endoglucanase.

The problem to be solved by the present invention may therefore be regarded as improving the energy economy of the mechanical pulping process.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.

Enzymes with the ability to modify and degrade cellulose are called cellulases. These enzymes comprise both cellobiohydrolases and endoglucanases. Since claim 1 is not limited to any special or surprising ratio of cellobiohydrolase and endoglucanase (see also item VIII, 2.: the term "effective amount" is unclear), the enzyme preparation in claim 1 can be construed as a conventional cellulase. A person skilled in the art gets a hint from D1 that cellulase could be used in the pre-treatment of the chips, although cellulase is not used as the enzyme in the examples in D1.

However, cellulase has already been employed for the same purpose in a similar process, see document D2, page 2, lines 15-32. D2 discloses a process for the production of mechanical pulp in which chips are pre-treated with cellulase in order to solve problems with reduced energy consumption. Therefore, it would be obvious to the person skilled in the art, namely when the same result is to be achieved, to apply this feature with corresponding effect to a process according to document D1, thereby arriving at a process according to claim 1. It is considered to be obvious for the skilled person to try cellulase as the pre-treatment enzyme instead of the enzymes used in the examples of D1, thus arriving at the process defined in claim 1.

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(SEPARATE SHEET)**

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The same reasoning applies, mutatis mutandis, to the subject-matter of the independent claims 16 and 17, which therefore are also considered not inventive.

3. Dependent claims 2 -15 and 18 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step, since the features defined therein are known from the documents D1 and D2 or are merely possibilities from which the skilled man would select, in accordance with circumstances, without the exercise of inventive skill in order to solve the problem posed (Article 33(3) PCT).